

Notes:

Observations:

- Hives by waterways had higher losses.
- Dead zones where farmers have had wet cake applied.
- Air particles contaminated too
- Nectar, pollen, water contamination
- Localized problem at this point. Nebraska beekeepers haven't been doing well
- Odd behavior of insects (easy to catch by hand) and bird (horned meadowlark) near the site. The meadowlark was observed eating dead bees in the trap.
- On average 60-80% losses for NE beekeepers. Commercial beekeepers have left.
- Ethanol plant waste product grain distiller's grain "wet cake" residues can't be fed to livestock.
- No liner under the wet cake. Puddling and draining of water into soil around the wet cake piles.
- Health issues: Locals living near the plant have complained about the smell, feeling sick/nauseous, swollen eyes.
- Last 3 years UNL has lost 48 hives, approx. \$65-95K in losses.
- High levels in pollen, not the honey b/c bees use their honey stomach.
- When using bee traps look for nurse bees.

Used dead bee traps to monitor losses. More dead bees in early spring (old bees) and again in fall. Summer had less mortality. Population of bees is larger at this time of year and the bees will throw their dead bees further away from the hives.

Clothianidin detected in high levels by NDA. One sample had 554,000 ppb. The levels varied depending on where the samples were taken. Also, some non-treated grain would be mixed w/the treated grain.

The holding tanks had liquid waste from processing. The levels were not as high as the wet cake. Fungicides were found at higher levels.

Tank liner damaged-potential for ground water contamination? Ditches would fill up with water from the hoses.

Systemic pesticides absorbed from the soil by the roots of plants and transported to other areas of the plant. Difficult to estimate the chemical load and exposure.

Additional concerns:

Concern not just for bees but also monarch butterflies and the milkweed plants.

Wet cakes, liquid discharge, starting new by-product-Biochar?

Wet cake in landfill

If the ethanol plant is shut down where will the waste wet cake go? Leoti, KS plant is closed now. Did they also have issues with wet cake?

Varroa mites are more of a problem than pesticides. Miticide resistance or using outdated product that is not as effective. Some examples a beekeeper used a miticide and didn't plug holes in the hive. Another beekeeper made applications when the outside temperature was too hot resulting in losses. Beekeepers must remember follow the label when using miticides.

Testing Challenges:

Certified labs for samples are expensive approx. \$400 per sample.

- Not sure how long food stores residue will be there
- Dead bee sampling is unreliable due to bacteria, light, degradation
- Flowers are hit or miss when sampling
- Bees have large foraging ranges (1-2 miles)
- Testing blindly wastes money
- Need more sampling with target sampling

Challenges:

EPA unable to help b/c this is not a misuse of pesticide application.

Understudied- not sure if ethanol plant is causing the losses or not.

What can beekeepers do?

Keep good records when they treat for mites, etc.

Know what is sprayed in the area and when to track potential cycles.

Questions from audience

Are there federal regulations for treated seed disposal including record keeping? Seed treatments are exempt?

One health approach. Would this garner more attention? Bees are part of a larger bio-health issue, people complaining about health issues.

Are water wells in the area being tested for pesticides?